

T&R MANUAL, MATC

APPENDIX B

ENLISTED CONTROLLER KNOWLEDGE SYLLABUS

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APPENDIX B

ENLISTED CONTROLLER KNOWLEDGE SYLLABUS

1. ATC Qualifications

a. Tower Flight Data (TFD) qualification. An enlisted controller is TFD qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

b. Tower Ground Control (TGC) qualification. An enlisted controller is TGC qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

c. Radar Flight Data (RFD) qualification. An enlisted controller is RFD qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

d. Radar Final Controller (RFC) qualification. An enlisted controller is RFC qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

e. Data Link Coordinator (DLC) qualification. An enlisted controller is DLC qualified upon completion of required familiarization events in the appendix of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

f. Marine ATC Mobile Team Member/Leader (MMT) qualification. An enlisted controller is designated as an MMT member upon completion of the Combat Ready phase of this syllabus. A controller is certified an MMT Leader upon completion of the combat qualified phase. An entry shall be made in the individual MACCS performance record stating the qualification.

g. Tower Local Control (TLC) qualification. An enlisted controller is TLC qualified upon completion of required events in the Combat Qualification phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

h. Radar Air Traffic Control Facility (RATCF) qualification. An enlisted controller is RATCF qualified upon completion of required events in the Combat Qualification phase of this syllabus. Approach training shall be utilized and a RATCF qualification will be achieved when certified on any RATCF positions which incorporate control of both arrival and departure traffic. This qualification is only used where no approach facility exists. An entry shall be made in the individual MACCS performance record stating the qualification.

i. Approach Controller (APC) qualification. An enlisted controller is APC qualified upon completion of required events in the Combat Qualified phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification. Approach control training will be utilized

and an approach qualification will be achieved when certified on any RATCF positions which incorporate control of both arrival and departure traffic. An entry shall be made in the individual MACCS performance record stating the qualification.

j. Tower Watch Supervisor (TWS) designation. An enlisted controller is designated a TWS by the ATCFO upon completion of required events in the Full Combat Qualification phase of the syllabus. A letter shall be inserted in the individual MACCS performance record stating the qualification.

k. Radar Watch Supervisor (RWS) designation. An enlisted controller is designated an RWS by the ATCFO upon completion of required events in the Full Combat Qualification phase of the syllabus. A letter shall be inserted in the individual MACCS performance record stating the qualification.

l. Facility Watch Officer/Watch Commander (FWO/WC) designation. An enlisted controller is designated an FWO/WC by the ATCFO upon completion of required events in the Full Combat Qualification phase of the syllabus. A letter shall be inserted in the individual MACCS performance record stating the qualification.

2. Knowledge Syllabus

a. The ATC MOS is knowledge intensive. The knowledge in this appendix is required of a controller to obtain not only position qualifications but combat qualifications as well. There is common knowledge applicable to both the tower and radar branches of a facility which has been put in a separate section entitled "Common Knowledge." In addition, each branch has specific knowledge required for qualification for which each has a specific section in the appendix.

b. All knowledge in this appendix is a prerequisite for an event throughout this syllabus. Knowledge associated with a control position will be taught and tested during the student controller's training. **Knowledge in this syllabus shall be tested through examination with a minimum passing score of 80 percent.**

c. The following abbreviations apply: Common knowledge (KFAM), Tower common knowledge (KTWR), Radar common knowledge (KRDR), Tower Flight Data knowledge (KTFD), Tower Ground Control knowledge (KTGC), Tower Local Control knowledge (KTLC), Radar Flight Data knowledge (KRFD), Radar Final Control knowledge (KRFC), and Approach Control knowledge (KAPC). RATCF qualifications require comprehension of approach control knowledge.

d. At the end of the appendix is a list of recommended knowledge consisting of Navy, Air Force, Army, and Joint Modules. These modules will enhance the warfighting capabilities of our senior enlisted Marines.

3. Common Knowledge

KFAM-200

Topic. Memorize the airfield layout.

Requirement. Draw/label from memory an airfield diagram to include:

- Runways.
 - Numbering/marking.
 - Length and width.
 - Aircraft weight bearing capacity.
 - Crash Fire Rescue standby positions.
 - Windssocks (type/capacity).
 - Optical landing system positions.

- Helicopter landing areas/spots.
 - Name/designation.
 - Restrictions.

- Taxiways.
 - Length and width.
 - Directional usage.
 - Aircraft weight bearing capacity.
 - Designation (name/number).
 - Special use areas (hazardous cargo, hot brakes, ordnance load/offload, arm/dearm, etc.).
 - Special routes (VIP, ordnance carrying, etc.).
 - Restrictions.

- Fuel Pits.
 - Number of fueling points.
 - Directional usage.
 - Types of fuel available.

- Aircraft wash racks.
 - Restrictions.
 - Directional usage.

- Tenant aircraft parking ramps.
 - Squadron assigned.
 - Type of aircraft.
 - Tactical call sign/MODEX.
 - Hangar assigned.
 - Taxi routes.

- Transient parking ramps.
 - Restrictions.
 - VIP spots.
 - Taxi routes.

- Crash Fire Rescue.
 - Location.
 - Types of vehicles.

- Hangars.
 - Building number.
 - Unit assigned.
 - Special usage (if applicable).
- Vehicular traffic.
 - Restrictions.
 - Routes.
 - Clearances.
 - Control devices (road lights, traffic arms, etc.).
- Visual aids.
 - Runway lights.
 - Approach lights.
 - Taxiway lights.
 - Airfield beacon.
 - Obstruction lights.
 - Optical landing systems.
- Navigation aids.
 - Type and channel/frequency.
 - Location and monitoring capability.
 - Compass rose.
- Obstructions on the airfield.
 - Type, height, and location.
- ATC radar types and location.

Reference. Local publications and Flight Information Publications.

KFAM-201

Topic. General ATC knowledge.

Reference

FAA 7110.65

Ch1	Sec1	General.
Ch1	Sec2	Terms of Reference.
Ch2	Sec1	General.
Ch2	Sec2	Forwarding Amended and UTM Data.
Ch2	Sec4	Radio and Interphone Communication.
Ch2	Sec8	RVR - Terminal (ARR,DPT,APC).
Ch2	Sec10	Team Position Responsibilities(Crew).
Ch3	Sec1	Establishing Two Way Communications.
Ch9	Sec1	General (Special Flights).
Ch10	Sec1	General (Emergencies).
Glossary Terms		
		Additional Service.
		Advisory Frequencies.
		Aerial Refueling.

Affirmative.
Roger.
Wilco.
Aircraft Classes.
AirMet.
Approach Gate.
Final Approach Fix.
Final Approach Course.
Decision Height.
Overhead Approach.
Pilot's Discretion.
PIREP.
Preferential Routing.
Procedure Turn.
Segments of Instrument Approach.
Short Range Clearances.
Simulated Flameout.
Published Missed Approach.
Tower En Route Service.

Local publications.

KFAM-202

Topic. Local area/airfield specific knowledge.

Reference

FAA 7110.65

Ch 3 Sec 3 Arresting System Operation.

Ch 3 Sec 5 Selection.

Local publications Airfield Weather Minimums.
Type Aircraft Assigned Each Local Squadron.
Modex/Tactical Call of Each Local Squadron.
Traffic Patterns and NAVAID Procedures.
Alternate/Divert Airfield.
Adjacent Airfields.
Airport Surface Area Description.
Facility Frequencies.

KFAM-203

Topic. Emergency/Safety knowledge.

Reference

FAA 7110.65

Ch2 Sec1 Inflight Equipment Malfunctions.

Ch2 Sec1 Minimum Fuel.

Ch4 Sec7 Below Minima Report by Pilot.

Ch5 Sec2 Emergency Code Assignment.

Ch10 Sec1 General.

Ch10 Sec2 Emergency Assistance.

Ch10 Sec3 Overdue Aircraft.

Ch10 Sec4 Control Actions.
NAVAIR 00-80T-114
Ch3 Facility Operation.
Ch3 Security of Facilities.
Ch3 Aircraft Accidents and Incidents.
Ch3 Operational Errors/Deviations.
Local publications.

KFAM-204

Topic. Weather knowledge.

Reference

FAA 7110.65
Ch2 Sec6 Weather Information.
Ch2 Sec7 Altimeter Settings.
Ch2 Sec8 Runway Vsby Reporting-Terminal.
Ch2 Sec9 ATIS Procedures.
Ch3 Sec1 Low Level Windshear Advisories.
FAA 7210.3L
Ch12 Sec3 Operations.
Ch16 Aviation Meteorological Services.
Local publications.

KFAM-205

Topic. Mission, tasks, and organization of the MACS.

Requirement

- Mission of the MACS.
- MAGTF commander concept of employment.
- Three operational sections of a MACS ATC detachment.
- Relationship of MACS ATC Detachment to the MACCS.
- MAGTF MACS employment options as applicable to:
 - Marine Expeditionary Unit.
 - Marine Expeditionary Brigade.
 - Marine Expeditionary Force.
 - Special Purpose MAGTF.

Reference. Lectures A-01 through A-08, "Marine Air Control Squadron (#00305)", MAWTS-1 ASP, and NAVAIR 00-80T-115.

KFAM-206

Topic. MATCD systems and support equipment.

Requirement. Locate, identify and state the nomenclature of the following MATCD support equipment:

- AN/HD-1099, Air Conditioner.
- AN/MEP-006A, Generator With Load Bank.

- AN/MEP-15, Generator.
- VM-1503, Mobilizer.
- 9503, Mobilizer.
- M1022, Mobilizer.
- M998, HMMWV.
- TSM-170, Maintenance Van.
- AN/GRC-171(V)1, UHF Radio.
- AN/GRC-171(V)2, UHF Radio.
- AN/GRC-211, VHF Radio.
- AN/URC-94(V)2, VHF-FM/HF-AM SSB Radio.
- AN/VRC-82, VHF-FM Radio.
- AN/TPN-30, (MRAALS).
- AN/TPS-73, Air Traffic Control Subsystem (ATCS).
- AN/TPN-22, Automatic Landing Subsystem (ALS).
- AN/TSQ-131, Control and Communication Subsystem (CCS).
- AN/TRN-44, TACAN.
- AN/TRC-195, Portable Tower (Control Central).
- AN/TSQ-216, Remote Landing Site Tower (RLST).
- AN/TSQ-120A/B, Control Tower.

KFAM-207

Topic. Tactical Landing Zone (TLZ).

Requirement. Describe the correct procedures for establishing a TLZ.

Reference. AFI 13-217, NAVAIR 01-75GAA-1T, MAWTS-1 ASP, and MMT SOP.

KFAM-208

Topic. Obtain, record, and relay a close air support brief.

Requirement. With an Air Support Request, receive and relay a nine line brief to appropriate agencies.

Prerequisite. Lectures A-04, B-09, and B-16.

KFAM-209

Topic. Knowledge of organic communications equipment.

Requirement. Explain the characteristics of each piece of equipment and the purposes, responsibilities and components of COMSEC and the principles of transmission, physical and cryptographic security (as applicable) of the following:

- AN/GRC-171 (V) (Tower).
- AN/GRC-171 (V) (TADIL-C).
- AN/GRC-211.
- AN/URC-94 (V).
- AN/VRC-82.
- KG-84C.
- KY-58.
- KY-99.
- KIR-1C.

- KY-75.
- KYK-13.
- KOI-18.
- ARC-210.
- CYZ-10.

Prerequisite. Lecture A-19.

KFAM-300

Topic. Obtain working knowledge of communications plans and orders.

Requirement. With an Automated Communications Electronic Operating Instruction (ACEOI), MCI 25.4, and other references as required, explain the purpose and use of a communications plan, ACEOI (with specific emphasis on ATC items), and Annex K of an operations order/plan.

KFAM-301

Topic. Describe the communications flow within the MACCS.

Requirement. Describe the communications flow within the MACCS to include agency connectivity using the following nets:

- Track Supervision Net (TSN).
- Tactical Coordination Net (TCN).
- Combat Information/Detection Net (CI/D).
- Tactical Air Command Net (TAC CMD).
- Tactical Air Traffic Control Net (TATC).
- Direct Air Support Net (DAS).
- Command Coordination Net (COMM COORD).

Prerequisite. Lectures B-15 and B-22.

KFAM-302

Topic. Demonstrate knowledge of Electronic Warfare (EW) and its effects on MATCD equipment.

Requirement. Explain the following EW subjects:

- Electronic Attack Brevity Codes(EA).
- Electronic Protection (EP).
- Radiation Control (RADCON).
- Emission Control (EMCON) as it applies to ATC.
- The effects of chaff on ATC radars.
- Definition of the types of active EP.
- Definition of different types of EA techniques.
- Meaconing, Intrusion, Jamming and Interference (MIJI) reporting as it applies to the following ATC equipment:
 - AN/TSQ-120.
 - AN/TRN-44.
 - AN/TPN-30.

- AN/TSQ-131.
- AN/TPS-73.
- AN/TPN-22.

Prerequisite. Lecture B-14.

KFAM-303

Topic. Obtain a basic knowledge of Early Warning Control Site (EWC)/Tactical Air Operations Center (TAOC).

Requirement. Describe the Early Warning Control site (EWC)/TAOC to include:

- Radar types and capabilities.
- TAOM capabilities.
- TADIL capabilities.
- Communications assets.

Prerequisite. Lecture B-08.

KFAM-304

Topic. The role of the Short Range Air Defense (SHORAD) detachment and its integration into the MACCS (REIN).

Requirement. Explain the following aspects of the Low Altitude Air Defense (LAAD) detachment:

- Tactical role within the MACCS.
- Structure - Firing battery, Remote Engagement Site (RES), Secondary Acquisition Sector (SAS).
- Radar types - Continuous Wave Acquisition Radar (CWAR), Sentinel, Tactical Defense Alert Radar (TDAR).
- Datalink connectivity (ATDL-1).

Prerequisite. Lecture B-11.

KFAM-305

Topic. Forward Operating Bases (FOBs) and how the MATC Detachment supports them.

Requirement. Describe each FOB and how the MATCD is employed in support of:

- Main Air Base.
- Air Facility.
- Rapid Ground Refueling (RGR) procedures.
- Air Site - Tactical Landing Zone (TLZ), Helicopter Landing Zones (HLZ).
- Air Point - Forward Arming and Refueling Point, Rapid Ground Refueling (RGR), Lager Point.

KFAM-400

Topic. Development process of the Air Tasking Order (ATO)/Air Control Order (ACO).

Requirement. Describe the elements and process used to develop an ATO and ACO using the ATO construction manual.

KFAM-401

Topic. Master knowledge and proficiency to execute the fundamental principles of rear area security planning.

Requirement. Apply the concepts and terminology common to the conduct of rear area security operations. Describe the interrelationships between:

- Joint Rear Area Coordination (JRAC).
- Combat Service Support Operations Center (CSSOC).
- Rear Area Security Coordinator (RASC).
- Rear Area Operations Center (RAOC).
- Tactical Security Officer (TSO).
- Assistant TSO (ATSO).
- Patrol Leader (PL).
- Roving Patrol/Reaction Team.
- Sentry Posts (SPs).
- Observation Posts (OPs).
- Listening Posts (LPs).

KFAM-402

Topic. Demonstrate knowledge of the site selection process for a MATCD.

Requirement. With appropriate maps and/or aerial photographs, references, and mission statement, demonstrate the site selection process for a MATCD to include:

- Select an ATC Detachment site considering:
 - Mission.
 - Reconnaissance of selected sites.
 - Tower placement.
 - PAR placement.
 - ASR placement.
 - CCS placement.
 - Radar coverage.
 - Camouflage.
 - Site security.
 - Communications.
 - Support equipment.
- Account for the following ATC equipment characteristics:
 - Siting limits of the radar set.
 - Optimum runway/sector coverage.
 - Obstructions to radar view.
 - Terrain characteristics.

- Typical siting configurations.
- Power requirements.
- Installation requirements.
- Wind survival tie down procedures.

KFAM-403

Topic. Develop and staff a Letter of Agreement (LOA)/Letter of Instruction (LOI).

Requirement. With use of reference and provided scenario information, learn how to prepare an LOA and an LOI to include:

- Purpose.
- Content.
- Controlling agencies involved.
- Distribution.
- Applicability.

KFAM-404

Topic. Staff a waiver request to required FAA regulations through chain of command/CNO.

Requirement. In a classroom setting, with reference and scenario information provided, learn how to prepare a waiver to include.

- Purpose.
- Content.
- Justification.
- Controlling agencies involved.
- Distribution.
- Applicability.
- Alternate and safe procedures.

KFAM-405

Topic. Terminal Instrument Procedures (TERPS).

Requirement. Explain the purpose of TERPS to include:

- Two types of terminal instrument procedures.
- Four segments in procedures construction.
- MATCD NAVAIDS equipment.
- Two areas of each segment.
- Required obstacle clearance for each approach segment.

Prerequisite. Lecture B-28.

KFAM-406

Topic. ATC tactical crew brief.

Requirement. During an operation or a training exercise, properly conduct an ATC tactical crew brief to include:

- Enemy and friendly situation.
- Air defense warning condition.
- Air defense alert state.
- Air defense weapons release condition.
- Continuing missions.
- Scheduled events.
- Published air tasking order (ATO).
- Assigned frequencies/callsigns.
- Weather.
- Equipment status.
- Crew requirements.
- Emergency procedures.

Prerequisite. Lectures A-12, A-13 and B-1 through B-13.

KFAM-407

Topic. Facility/Personnel/Operations/Training Management knowledge applied in OJT environment.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Aeronautical Information Manual
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement	
VFR Supplement	
NOTAMS	General notices.
AP1B	North American Military Training Route.
Local Sectional	
SECNAV 5216.5C	Memorandum Of Understanding.
NAVAIR 00-80T-114	
Ch 2	General.
Ch 3	Facility Management.
Ch 4	Naval Certification Procedures.
Ch 6	Control Tower.
Ch 8	Training, Standardization, and Air Traffic Controller Performance Evaluations.
Appendix C	Sample format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States.	
High Altitude United States.	
Local publications.	

4. Tower Knowledge

KTWR-210

Topic. Tower equipment.

Reference

FAA 7110.65
 Ch2 Sec1 NAVAID Malfunction.
 Ch2 Sec9 ATIS.
 Ch3 Sec1 Tower Radar Displays.
 Ch3 Sec2 Light Gun.
 Ch3 Sec2 Receiver Only Acknowledgment.
 Ch3 Sec4 All Applicable Airport Lighting.
 Ch3 Sec6 ASDE (if applicable).
 FAA 7210.3
 Ch3 General.
 NAVAIR 00-80T-114
 Ch2 Airport Facilities.
 Ch6 Equipment (Tower).
 Tower Visibility Chart.
 MCO 3501.9 MACCS MCCRES.
 Local publications.

KTWR-211

Topic. Strip marking.

Reference

FAA 7110.65
 Ch2 Sec 2 Flight Plans and Control Information.
 Ch2 Sec 3 Flight Progress Strips.
 Local publications.

KTWR-212

Topic. Airfield Lighting.

Reference

FAA 7110.65
 Ch3 Sec4 Emergency Lighting.
 Ch3 Sec4 Runway End Identifier Lights.
 Ch3 Sec4 VASI Lights.
 Ch3 Sec4 Approach Lights.
 Ch3 Sec4 ALS Intensity.
 Ch3 Sec4 Sequenced Flashing Lights.
 Ch3 Sec4 MALSR.
 Ch3 Sec4 ALSF-2.
 Ch3 Sec4 Runway Edge Lights.
 Ch3 Sec4 High Intensity Runway, Centerline Light.
 Ch3 Sec4 HIRL Associated With MALSR.

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Ch3 Sec4 HIRL Changes.
Ch3 Sec4 Medium Intensity Runway Lights.
Ch3 Sec4 Simultaneous Approach/Runway Edge.
Ch3 Sec4 High Speed Turnoff Light.
Ch3 Sec4 Taxiway Lights.
Ch3 Sec4 Obstruction Lights.
Ch3 Sec4 Rotating Beacon.
FAA 7210.3
Ch12 Sec6 Airport Lighting.
NAVAIR 51-50AAA-2 (All Airfield markings).
Local publications.

KTFD-240

Topic. Phraseology/Communications.

Reference

FAA 7110.65
Ch2 Sec4 Radio and Interphone Communications.
Local publications.

KTFD-241

Topic. Clearance/coordination.

Reference

FAA 7110.65
Ch2 Sec5 Route and NAVAID Description.
Ch4 Sec2 Clearances.
Ch4 Sec3 Departure Procedures.
Ch4 Sec4 Route Use.
Ch4 Sec4 Route Structure Transitions.
Ch4 Sec4 Class G Airspace.
Ch4 Sec5 Flight Direction.
Ch4 Sec5 Exceptions.
Ch4 Sec5 Lowest Usable Flight Level.
Local publications.

KTFD-242

Topic. Letters of Agreements/Facility Directives/Facility Memos/Publications.

Reference

FAA 7220.1 Operational Position Standards.
FAA 7110.65 Air Traffic Control.
FAA 7210.3 Facility Operations.
FAA 7340.1 Contractions Manual.
FAR 91 General Operating.
AIM Airman's Information Manual
AOM Airfield Operations.

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ATC FacMan Facility Operations.
IFR Supplement
VFR Supplement
NOTAMS General Notices.
AP1B Military Training Route.
Local Sectional
SECNAVINST 5216.5C Memorandum of Understanding.
NAVAIR 00-80T-114
Ch 3 Facility Management.
Appendix C Sample Format for FAA/USN Letter of Agreement
Concerning Control of Air Traffic.
Appendix D Memorandum of Agreement.
Low Altitude United States.
High Altitude United States.
Letters of Agreement.

KTGC-243

Topic. Phraseology/communications.

Reference

FAA 7110.65
Ch2 Sec4 Radio and Interphone Communications.
Ch3 Sec2 Light Signals.
Local publications.

KTGC-244

Topic. Clearance/coordination.

Reference

FAA 7110.65
Ch2 Sec5 Route and NAVAID Description.
Ch4 Sec2 Clearance Items.
Ch4 Sec2 Clearance Prefix.
Ch4 Sec2 Delivery Instructions.
Ch4 Sec2 Clearance Relay.
Ch4 Sec2 Route or Altitude Amendments.
Ch4 Sec2 Through Clearances.
Ch4 Sec2 ALTRV Clearance.
Ch4 Sec2 IFR-VFR and VFR-IFR Flights.
Ch4 Sec2 Clearance Items.
Ch4 Sec3 Departure Procedures.
Ch4 Sec4 Route Use.
Ch4 Sec4 Route Structure Transitions.
Ch4 Sec4 Class G Airspace.
Ch4 Sec5 Flight Direction.
Ch4 Sec5 Exceptions.
Ch4 Sec5 Lowest Usable Flight Level.
Local publications.

KTGC-245

Topic. Separation.

Reference

FAA 7110.65

Ch3	Sec1	Provide Service.
Ch3	Sec1	Preventive Control.
Ch3	Sec1	Use of Active Runways.
Ch3	Sec1	Coordination Local and Ground.
Ch3	Sec1	Vehicles/Equipment/Personnel on Runway.
Ch3	Sec1	Traffic Information.
Ch3	Sec1	Position Determination.
Ch3	Sec1	Low Level Windshear Advisories.
Ch3	Sec1	Observed Abnormalities.
Ch3	Sec1	Visually Scanning Runways.
Ch3	Sec3	Landing Area Condition.
Ch3	Sec3	Closed/Unsafe Runway Information.
Ch3	Sec3	Timely Information.
Ch3	Sec3	Braking Action.
Ch3	Sec3	Braking Action Advisories.
Ch3	Sec3	Arresting System Operation.
Ch3	Sec7	Ground Traffic Movement.
Ch3	Sec7	Taxi/Ground Movement Operations.
Ch3	Sec7	Ground Operations.
Ch3	Sec7	Runway Proximity.
Ch3	Sec7	Precision Approach Critical Area.
Ch3	Sec11	Taxi/Ground Movement Operation.

Local publications.

KTGC-246

Topic. Letters of Agreement and Facility Directives/Memos/Publications.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Airman's Information Manual.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	North American Military Training Routes.
Local Sectional.	
SECNAVINST 5216.5C	Memorandum of Understanding.
NAVAIR 00-80T-114:	
Chapter 3	Facility Management.

Appendix C Sample Format for FAA/USN Letter of Agreement
Concerning Control of Air Traffic.

Appendix D Memorandum of Agreement.

Low Altitude United States.

High Altitude United States.

KTWR-310

Topic. Tower equipment as applied on the Tower Local Control position.

Reference

FAA 7110.65

Ch2 Sec1 NAVAID Malfunction.
Ch2 Sec9 ATIS.
Ch3 Sec1 Tower Radar Displays.
Ch3 Sec2 Light Gun.
Ch3 Sec2 Receiver Only Acknowledgment.
Ch3 Sec6 ASDE (If Applicable).

FAA 7210.3

Ch3 Sec1 General.

NAVAIR 00-80T-114:

Ch2 Airport Facilities.
Ch6 Equipment (Tower).
Ch6 Tower Visibility Chart.

Local publications.

KTWR-311

Topic. General ATC knowledge in a Tower Local Control environment.

Reference

FAA 7110.65

Ch1 Sec1 General.
Ch1 Sec2 Terms of Reference.
Ch2 Sec1 General.
Ch2 Sec2 Forwarding Amended And UTM Data.
Ch2 Sec4 Radio and Interphone Communication.
Ch2 Sec8 RVR - Terminal (ARR,DPT,APC).
Ch2 Sec10 Team Position Responsibilities(Crew).
Ch3 Sec1 Establishing Two-way Communications.
Ch9 Sec1 General (Special Flights).
Ch10 Sec1 General (Emergencies).

Glossary Terms.

Additional Service.
Advisory Frequencies.
Aerial Refueling.
Affirmative.
Roger.
Wilco.
Aircraft Classes.
AirMet.
Approach Gate.

Final Approach Fix.
Final Approach Course.
Decision Height.
Overhead Approach.
Pilots Discretion.
PIREP.
Preferential Routing.
Procedure Turn.
Segments of Instrument Approach.
Short Range Clearances.
Simulated Flameout.
Published Missed Approach.
Tower En Route Service.

Local publications.

KTWR-312

Topic. Local area/airfield specific knowledge applied in a Tower Local Control environment.

Reference

FAA 7110.65
 Ch3 Sec3 Arresting System Operation.
 Ch3 Sec5 Selection.
Facility Manual Airfield Weather Minimums.
Type Aircraft Assigned Each Local Squadron.
Modex/Tactical Call of Each Local Squadron.
Traffic Patterns and NAVAID Procedures.
Alternate/Divert Airfield.
Adjacent Airfields.
Airport Surface Area Description (FAA 7400.8).
Facility Frequencies.

KTWR-313

Topic. Strip marking knowledge applied in a Tower Local Control environment.

Reference

FAA 7110.65
 Ch2 Sec2 Flight Plans and Control Information.
 Ch2 Sec3 Flight Progress Strips.
Local publications.

KTWR-314

Topic. Emergency/safety knowledge applied in a Tower Local Control environment.

Reference

FAA 7110.65
 Ch2 Sec1 Inflight Equipment Malfunctions.

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Ch2	Sec1	Minimum Fuel.
Ch4	Sec7	Below Minima Report by Pilot.
Ch5	Sec2	Emergency Code Assignment.
Ch10	Sec1	General.
Ch10	Sec2	Emergency Assistance.
Ch10	Sec3	Overdue Aircraft.
Ch10	Sec4	Control Actions.
NAVAIR 00-80T-114		
Ch3		Facility Operation.
Ch3		Security of Facilities.
Ch3		Aircraft Accidents and Incidents.
Ch3		Operational Errors/Deviations.

KTWR-315

Topic. Weather knowledge applied in a Tower Local Control environment.

Reference

FAA 7110.65		
Ch2	Sec6	Weather Information.
Ch2	Sec7	Altimeter Settings.
Ch2	Sec8	Runway Vsby Reporting - Terminal.
Ch2	Sec9	ATIS Procedures.
Ch3	Sec1	Low Level Windshear Advisories.
FAA 7210.3L		
Ch12	Sec3	Operations.
Ch16		Aviation Meteorological Services and Equipment.
Local publications.		

KTWR-316

Topic. Airfield lighting knowledge applied in a Tower Local Control environment.

Reference

FAA 7110.65		
Ch3	Sec4	Emergency Lighting.
Ch3	Sec4	Runway End Identifier Lights.
Ch3	Sec4	VASI Lights.
Ch3	Sec4	Approach Lights.
Ch3	Sec4	ALS Intensity.
Ch3	Sec4	Sequenced Flashing Lights.
Ch3	Sec4	MALS.
Ch3	Sec4	ALSF-2.
Ch3	Sec4	Runway Edge Lights.
Ch3	Sec4	High Intensity Runway, Centerline Lights.
Ch3	Sec4	HIRL Associated With MALSR.
Ch3	Sec4	HIRL Changes.
Ch3	Sec4	Medium Intensity Runway Lights.
Ch3	Sec4	Simultaneous Approach/Runway Edge.
Ch3	Sec4	High Speed Turnoff Light.
Ch3	Sec4	Taxiway Lights.

Ch3 Sec4 Obstruction Lights.
Ch3 Sec4 Rotating Beacon.
FAA 7210.3
Ch12 Sec6 Airport Lighting.
NAVAIR 51-50AAA-2 (All Airfield markings).
Local publications.

KTLC-340

Topic. Communications in a Tower Local Control environment.

Reference

FAA 7110.65
Ch2 Sec4 Radio and Interphone Communications.
Ch3 Sec2 Light Signals.
Local publications.

KTLC-341

Topic. Clearance/coordination applied in a Tower Local Control environment.

Reference

FAA 7110.65
Ch2 Sec5 Route and Navaid Description.
Ch3 Sec9 Take Off Clearances.
Ch3 Sec9 Cancellation of Take Off Clearance.
Ch3 Sec11 Helicopter Takeoff Clearance.
Ch4 Sec2 Clearances.
Ch4 Sec3 Procedures.
Ch4 Sec4 Route Use.
Ch4 Sec4 Route Structure Transitions.
Ch4 Sec4 Class "G" Airspace.
Ch4 Sec5 Flight Direction.
Ch4 Sec5 Exceptions.
Ch4 Sec5 Lowest Usable Flight Level.
Local publications.

KTLC-342

Topic. Spacing/sequencing/separation applied in a Tower Local Control environment.

Reference

FAA 7110.65
Ch3 Sec8 Spacing and Sequencing.
Ch3 Sec9 Departure Procedures/Separation.
Ch3 Sec10 Arrival Procedures/Separation.
Ch3 Sec11 Helicopter Departure Separation.
Ch3 Sec11 Helicopter Arrival Separation.
Ch3 Sec11 Simultaneous Landing/Takeoffs.

T&R MANUAL, MATC

Ch3	Sec11	Helicopter Landing Clearance.
Ch3	Sec12	Sea Lane Operations.
Ch5	Sec5	Minima.
Ch5	Sec8	Successive Simultaneous Departures.
Ch5	Sec8	Departure and Arrival.
Ch5	Sec8	Departures/Arrivals on Parallel or Non-Intersecting Diverging Runways.
Ch7	Sec2	Visual Separation.
Ch7	Sec5	SVFR.

Local publications.

KTLC-343

Topic. Letters of Agreement and Facility Directives/Memos/Publications applied in a Tower Local Control environment.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Airman's Information Manual.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	Military Training Route.
Local Sectional.	
SECNAVINST 5216.5C	Memorandum of Understanding.
NAVAIR 00-80T-114	
Ch 3	Facility Management.
Appendix C	Sample Format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States.	
High Altitude United States.	
Local publications.	

5. Radar Section

KRDR-220

Topic. Radar equipment.

Reference

FAA 7110.65		
Ch5	Sec1	Presentation and equip/performance.
Ch5	Sec1	Alignment check.
Ch5	Sec1	Radar use.
Ch5	Sec1	Beacon range accuracy.

T&R MANUAL, MATC

Ch5 Sec1 Electronic cursor.
Ch5 Sec2 Standby/low sensitivity operation.
Ch5 Sec2 Inoperative interrogator.
Ch5 Sec2 In-flight deviations from transponder.
Ch5 Sec2 Altitude filters.
Ch5 Sec15 Automated Radar Terminal Systems (ARTS) - Terminal.
Ch5 Sec16 TPX-42 - Terminal.
FAA 7210.3L
Ch3 Sec1 General.
Ch3 Sec7 Radar Use.
Ch3 Sec8 Video Maps.
NAVAIR 00-80T-114
Ch2 Airport Facilities.
Ch7 Equipment (Radar).
Appendix J Certification, Rating, and Quality Assurance Program.
Appendix O Precision Approach Landing System Approach Criteria.
Local publications.

KRDR-221

Topic. Strip marking.

Reference

FAA 7110.65
Ch2 Sec2 Flight Plans and Control Information.
Ch2 Sec3 Flight Progress Strips.
Local publications.

KRDR-320

Topic. Radar equipment knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65
Ch5 Sec1 Presentation/Equipment Check.
Ch5 Sec1 Alignment Check.
Ch5 Sec1 Radar Use.
Ch5 Sec1 Beacon Range Accuracy.
Ch5 Sec1 Electronic Cursor.
Ch5 Sec2 Standby/Low Sensitivity Operation.
Ch5 Sec2 Inoperative/Malfunctioning Interrogator.
Ch5 Sec2 In-Flight Deviations from Transponder.
Ch5 Sec2 Altitude Filters.
Ch5 Sec15 ARTS - Terminal.
Ch5 Sec16 TPX-42 - Terminal.
FAA 7210.3L.
Ch3 Sec1 General.
Ch3 Sec7 Radar Use.
Ch3 Sec8 Video Maps.

NAVAIR 00-80T-114

Ch2	Sec6	Airport Facilities.
Ch7	Sec2	Equipment (Radar).
Appendix J		Certification, Rating, and Quality Assurance Program.
Appendix O		Precision Approach Landing System Approach Criteria.

KRDR-321

Topic. Local area/airfield specific knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65		
Ch3	Sec3	Arresting System Operation.
Ch3	Sec5	Selection.
Facility Manual		Airfield Weather Minimums.
		Type aircraft assigned each local Squadron.
		Modex/Tactical call of each local squadron.
		Traffic patterns and NAVAID procedures.
		Alternate/Divert airfield.
		Adjacent airfields.
		Airport surface area description (FAA 7400.8).
		Facility Frequencies.

KRDR-322

Topic. General ATC knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65		
Ch1	Sec1	General.
Ch1	Sec2	Terms of Reference.
Ch2	Sec1	General.
Ch2	Sec2	Forwarding Amended And UTM Data.
Ch2	Sec4	Radio and Interphone Communication.
Ch2	Sec8	RVR - Terminal (ARR,DPT,APC).
Ch2	Sec10	Team Position Responsibilities.
Ch3	Sec1	Establishing Two-Way Communications.
Ch9	Sec1	General (Special Flights).
Ch10	Sec1	General (Emergencies).
Glossary Terms.		
		Additional Service.
		Advisory Frequencies.
		Aerial Refueling.
		Affirmative.
		Roger.
		Wilco.
		Aircraft Classes.
		AirMet.

Approach Gate.
Final Approach Fix.
Final Approach Course.
Decision Height.
Overhead Approach.
Pilots Discretion.
PIREP.
Preferential Routing.
Procedure Turn.
Segments of Instrument Approach.
Short Range Clearances.
Simulated Flameout.
Published Missed Approach.
Tower En Route Service.

Local publications.

KRDR-323

Topic. Strip marking applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch2 Sec2 Flight Plans and Control Information.

Ch2 Sec3 Flight Progress Strips.

Local publications.

KRDR-324

Topic. Emergency/Safety applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch2 Sec1 In-flight Equipment Malfunction.

Ch2 Sec1 Minimum Fuel.

Ch4 Sec7 Below minima report by pilot.

Ch5 Sec2 Emergency Code Assignment.

Ch10 Sec1 General.

Ch10 Sec2 Emergency Assistance.

Ch10 Sec3 Overdue Aircraft.

Ch10 Sec4 Control Actions.

NAVAIR 00-80T-114

Ch3 Facility Operation.

Security of Facilities.

Aircraft Accidents/Incidents.

Operational Errors/Deviations.

Local publications.

KRDR-325

Topic. Weather knowledge applied in an Approach Control environment.

Reference

FAA 7110.65
 Ch2 Sec6 Weather Information.
 Ch2 Sec7 Altimeter Settings.
 Ch2 Sec8 Runway Vsby Reporting - Terminal.
 Ch2 Sec9 ATIS Procedures.
 Ch3 Sec1 Low Level Windshear Advisories.
 FAA 7210.3L
 Ch12 Sec3 Operations.
 Ch16 Aviation Meteorological Services and Equipment.
 Local publications.

KRFD-250

Topic. Phraseology/Communications.

Reference

FAA 7110.65
 Ch4 Sec7 Single frequency approaches (SFA).
 Ch4 Sec8 Communications release.
 Ch4 Sec2 Clearance relay.
 Ch5 Sec4 Terms (Transfer of Radar ID).
 Ch5 Sec6 Methods (Vectoring).
 Ch5 Sec7 Application (Speed Adjustment).
 Local publications.

KRFD-251

Topic. Clearance/Coordination.

Reference

FAA 7110.65
 Ch4 Sec2 ALTRV Clearances.
 Ch4 Sec2 Clearance Items.
 Ch4 Sec3 Departure Terminology.
 Ch4 Sec3 Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times.
 Ch4 Sec3 VFR Release of IFR Departure.
 Ch4 Sec5 Flight Direction.
 Ch4 Sec5 Exceptions.
 Ch4 Sec5 Lowest Usable Flight Level.
 Ch4 Sec4 Altitude Information.
 Ch4 Sec5 Anticipated Altitude Changes.
 Ch4 Sec6 Clearance Beyond Fix.
 Ch4 Sec6 Unmonitored NAVAIDS.
 Ch4 Sec6 ILS Protection/Critical Areas.
 Ch4 Sec7 Clearance Information.
 Ch4 Sec8 Approach Clearance.
 Ch4 Sec8 Clearance Limit.

Local publications.

KRFD-252

Topic. Letters of Agreement and Facility Directives/Memos/Publications.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Airman's Information Manual.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	North America Military Training Route.
Local Sectional	
SECNAVINST 5216.5C	Memorandum of Understanding.
NAVAIR 00-80T-114	
Ch3	Facility Management.
Appendix C	Sample Format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States.	
High Altitude United States.	
Local publications.	

KRFC-253

Topic. Phraseology/Communications.

Reference

FAA 7110.65	
Ch2 Sec1	Wheels Down Check.
Ch2 Sec4	Radio and Interphone.
Ch4 Sec2	Clearance Relay.
Ch4 Sec7	Single Frequency Approaches (SFA).
Ch4 Sec8	Communications Release.
Ch5 Sec4	Terms.
Ch5 Sec6	Methods (Vectoring).
Ch5 Sec7	Application (Radar Approaches).
Ch5 Sec10	No-Gyro Approach.
Ch5 Sec10	Lost Communications.
Ch5 Sec10	Radar Contact Lost.
Ch5 Sec10	Landing Check.
Ch5 Sec10	Position Information.
Ch5 Sec10	Final Controller Changeover.
Ch5 Sec10	Communications Check.

T&R MANUAL, MATC

Ch5 Sec10 Transmission Acknowledgment.
Ch5 Sec10 Missed Approach.
Ch5 Sec10 Low Approach and Touch-and-Go.
Ch5 Sec10 Tower Clearance.
Ch5 Sec10 Final Approach Abnormalities.
Ch5 Sec10 Military Single Frequency Approaches.
Ch5 Sec11 Surveillance Approach.
Ch5 Sec12 Precision Approach Radar.
Ch5 Sec13 Use of PAR for Approach Monitoring.
Local publications.

KRFC-254

Topic. Clearance/coordination.

Reference

FAA 7110.65
Ch3 Sec1 Low Level Windshear Advisories.
Ch3 Sec10 Altitude Restricted Approach.
Ch4 Sec8 Circling Approach.
Ch4 Sec8 Missed Approach.
Ch4 Sec8 Low Approach and Touch-and-Go.
Local publications.

KRFC-255

Topic. Separation knowledge.

Reference

FAA 7110.65
Ch2 Sec1 Formation flights.
Ch2 Sec1 Wake turbulence.
Ch2 Sec1 Wake turbulence advisories.
Ch2 Sec1 Traffic advisories.
Ch2 Sec1 Bird activity information.
Ch3 Sec1 Traffic information.
Ch4 Sec5 Vertical separation minima.
Ch5 Sec3 ARTS / PIDP ident methods.
Ch5 Sec3 Questionable identification.
Ch5 Sec4 Methods (Transfer of Radar ID).
Ch5 Sec4 Traffic (Radar Separation).
Ch5 Sec5 Application.
Ch5 Sec5 Target separation.
Ch5 Sec5 Minima (Radar separation).
Ch5 Sec5 Additional separation for formation flights.
Ch5 Sec9 Approach separation responsibility.
Ch7 Sec2 Visual separation.
Local publications.

KRFC-256

Topic. Letters of Agreement and Facility Directives/Memos/Publications.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Airman's Information Manual.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	North American Military training route.
Local Sectional	
SECNAVINST 5216.5C	Memorandum Of Understanding.
NAVAIR 00-80T-114	
Ch3	Facility Management.
Appendix C	Sample Format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States	.
High Altitude United States.	
Local publications.	

KDLC-263

Topic. Data link theory.

Requirement. Explain data link theory to include:

- Identify the characteristics of each of the five existing TADILs.
- Identify the meaning of data link reference point (DLRP), unit system coordinate center (USCC), unit position (UPOS).
- Identify the difference between the data grid and the display grid.
- Identify the capabilities of each services' command and control agencies to conduct one or more of the five data links.
- Specific considerations for data link operation.
- Describe the use of filters with TADIL-B.
- Identify voice nets to be activated for joint service operations
- List major considerations for selecting TADIL systems.
- List major considerations in the following MACCS interfaces:
 - TADIL-A.
 - TADIL-B.
 - ATDL-1.
 - TADIL-C.
 - TADIL-J.

Reference. MAWTS-1 "MACCS Data Link Interoperability (U)(#11214)", MAWTS-1 "Data Link Theory (#10437)".

KDLC-264

Topic. MATCALs Tactical Digital Information links (TADIL) B and C.

Requirement. Describe the use and capability of MATCALs TADIL-B and -C to include:

- Establishing and exiting TADIL-B circuits.
- Emergency circuit exit TADIL-B.
- Use of Filters with TADIL-B.
- Mode I, ACLS, TADIL-C.
- Mode II, ACLS, TADIL-C.

Reference. MAWTS-1 ASP.

KAPC-350

Topic. Advanced ATC applied in a Radar Approach Control environment.

Reference

FAA 7110.65

- Ch4 Sec1 NAVAID Use Limitation.
- Ch4 Sec5 Altitude Assignment/Verification.
- Ch4 Sec6 Holding Aircraft.
- Ch4 Sec7 Arrival Procedures.
- Ch5 Sec1 General.
- Ch5 Sec2 Beacon Systems.
- Ch5 Sec6 Vectoring.
- Ch5 Sec7 Speed Adjustments.
- Glossary Terms (All applicable terms).

KAPC-351

Topic. Advanced airfield specific knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65

- Ch2 Sec1 NAVAID Malfunctions.
- Ch2 Sec1 Military Procedures.
- Ch2 Sec5 NAVAID Terms.
- Ch2 Sec5 NAVAIDS Fixes.
- Ch3 Sec1 Observed Abnormalities.
- Ch3 Sec3 Landing Area condition.
- Ch3 Sec3 Timely Information.
- Ch3 Sec3 Braking Action.
- Ch3 Sec3 Braking Action Advisories.
- Ch3 Sec3 Arresting System Operation.
- Ch3 Sec5 Selection.
- Ch3 Sec5 STOL Runways.
- Ch3 Sec5 Tailwind Components.
- Ch4 Sec4 Route Use.

T&R MANUAL, MATC

Ch4	Sec4	Route Structure Transitions.
Ch4	Sec4	Degree-Distance Route.
Ch4	Sec4	Alternative Routes.
Ch4	Sec6	Holding Instructions.
Ch4	Sec7	Switching ILS / MLS Runways.
Ch5	Sec2	Assignment Criteria.
Ch5	Sec2	Discrete Environment.
Ch5	Sec2	Non-Discrete Environment.
Ch5	Sec2	Mixed Environment.
Ch5	Sec2	Automatic Altitude Reporting.
Ch5	Sec2	Beacon Termination.
Ch5	Sec3	Position Information.
Ch5	Sec7	Application.
Ch5	Sec9	Arrival Instructions.
Ch5	Sec10	Application.
Ch5	Sec10	Approach Information.
Ch9	Sec1	General.
Ch9	Sec1	Special Handling.
Ch9	Sec1	Flight Check Aircraft.
FAA 7210.3L		
Ch12	Sec6	Airport Lighting.
NAVAIR 00-80T-114		
Ch9		Terminal Instrument Approach Procedures.
Ch9		Standard Instrument Departure and Standard Terminal Arrival Procedures.
Ch9		Terminal Instrument Procedures at Airports Not Operated Or Tenanted By a Naval Command.
Appendix A		Memorandum of Agreement Between Department of Transportation Federal Aviation Administration, and the U.S. Army, the U.S. Navy, and the U.S. Air Force.
Local publications.		

KAPC-352

Topic. Non-radar knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65		
Ch1	Sec2	Terms of Reference (Review).
Ch2	Sec1	General (Review).
Ch2	Sec3	Flight Progress Strips.
Ch2	Sec5	Route and NAVAID Description.
Ch4	Sec1	NAVAID Use Limitations (Review).
Ch4	Sec5	Altitude Assignment/Verification (Review).
Ch4	Sec6	Holding Aircraft (Review).
Ch4	Sec7	Arrival Procedures (Review).
Ch4	Sec8	Approach Clearance Procedures.
Ch6	Sec1	General.
Ch6	Sec2	Initial Separation of Successive Departing Aircraft.
Ch6	Sec3	Initial separation of Departing and Arriving Aircraft.
Ch6	Sec4	Longitudinal Separation.
Ch6	Sec5	Lateral Separation.

T&R MANUAL, MATC

Ch6	Sec6	Vertical Separation.
Ch6	Sec7	Timed Approaches.
NAVAIR 00-80T-114		
Ch4		Naval Certification Procedures.
Ch7		General (Radar Operations).
Ch8		Training, Standardization, and Air Traffic Controller Performance Evaluations.
Appendix G		Air Traffic Control Specialist Mishap Statement.
Appendix I		Minimum Altitude Vectoring Chart.

KAPC-353

Topic. Coordination in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch2	Sec1	Reporting Essential Flight Info.
Ch2	Sec1	Coordinate Use of Airspace.
Ch2	Sec1	Control Transfer.
Ch2	Sec1	Surface Areas.
Ch2	Sec1	Supervisory Notification.
Ch2	Sec4	Monitoring (Radar & Interphone Comm).
Ch2	Sec4	Authorized Interruptions.
Ch2	Sec4	Authorized Relays.
Ch3	Sec10	Altitude Restricted Low Approach.
Ch4	Sec2	Clearance Prefix.
Ch4	Sec3	Departure Clearances.
Ch4	Sec3	Abbreviated Departure Clearance.
Ch4	Sec3	Delay Sequencing.
Ch4	Sec3	Forward Departure Delay Info.
Ch4	Sec3	Coordination W/Receiving Facility.
Ch4	Sec3	Forwarding Departure Times.
Ch4	Sec8	Circling Approach.
Ch4	Sec8	Missed Approach.
Ch4	Sec8	Low Approach and Touch-And-Go.
Ch5	Sec2	Radar Beacon Code Changes.
Ch5	Sec2	Radio Failure.

Local publications.

KAPC-354

Topic. Clearance knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch2	Sec1	TCAS Resolution Advisories.
Ch4	Sec2	ALTRV Clearances.
Ch4	Sec2	Clearance Items.
Ch4	Sec3	Departure Terminology.
Ch4	Sec3	Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times.

T&R MANUAL, MATC

Ch4	Sec3	VFR Release of IFR Departure.
Ch4	Sec5	Vertical Separation Minima.
Ch4	Sec5	Flight Direction.
Ch4	Sec5	Exceptions.
Ch4	Sec5	Lowest Usable Flight Level.
Ch4	Sec5	Altitude Information.
Ch4	Sec5	Anticipated Altitude Changes.
Ch4	Sec6	Clearance Beyond Fix.
Ch4	Sec6	Visual Holding Points.
Ch4	Sec6	Holding Flight Path Deviation.
Ch4	Sec6	Unmonitored NAVAIDS.
Ch4	Sec6	ILS Protection/Critical Areas.
Ch4	Sec7	Clearance Information.
Ch4	Sec8	Approach Clearance.
Ch4	Sec8	Clearance Limit.
Ch4	Sec8	Specifying Altitude.
Ch4	Sec8	Circling Approach.
Ch5	Sec7	Minima.
Ch5	Sec7	Termination.
Ch5	Sec8	Procedures.
Ch5	Sec8	Initial Heading.
Ch5	Sec8	Successive/Simultaneous Departures.
Ch5	Sec8	Departure And Arrival.
Ch5	Sec8	Departures And Arrivals On Parallel Or Non- Intersecting diverging Runways.
Ch5	Sec16	All.
Ch7	Sec1	Approach Control Service for VFR Arriving Aircraft.
Ch7	Sec2	Visual Separation.
Ch7	Sec4	Visual Approach.
Ch7	Sec4	Vectors for Visual Approach.
Ch7	Sec4	Clearances for Visual Approach.
Ch7	Sec4	Approaches to Multiple Runways.
Ch7	Sec4	Contact Approach.
Ch7	Sec5	Special VFR.
Ch7	Sec6	Basic Radar Service To VFR Aircraft - Terminal
Ch9	Sec4	Avoidance.
Ch9	Sec5	Fuel Dumping.
Ch9	Sec6	Jettisoning of External Stores.
Ch9	Sec8	Class D Airspace.
Ch9	Sec8	Other Control Airspace.

Local publications.

KAPC-355

Topic. Spacing/Sequencing applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch3	Sec1	Traffic Information.
Ch3	Sec9	Same Runway Separation.
Ch3	Sec9	Intersecting Runway Separation.
Ch3	Sec10	Same Runway Separation.

T&R MANUAL, MATC

Ch3	Sec10	Intersecting Runway Separation.
Ch3	Sec10	Altitude Restricted Low Approach.
Ch3	Sec10	Closed Traffic.
Ch3	Sec10	Simulated Flameout (SFO) Approaches/Practice Precautionary Approaches.
Ch4	Sec2	ALTRV Clearances.
Ch4	Sec3	Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times.
Ch4	Sec5	Altitude Information.
Ch4	Sec5	Anticipated Altitude Changes.
Ch4	Sec8	Missed Approach.
Ch5	Sec4	Methods.
Ch5	Sec4	Traffic.
Ch5	Sec5	Application.
Ch5	Sec5	Target Separation.
Ch5	Sec5	Minima.
Ch5	Sec5	Passing or Diverging.
Ch5	Sec5	Additional Separation for Formation Flights.
Ch5	Sec4	Separation From Obstructions.
Ch5	Sec8	Procedures.
Ch5	Sec8	Initial Heading.
Ch5	Sec8	Successive/Simultaneous Departures.
Ch5	Sec8	Departure And Arrival.
Ch5	Sec8	Departures And Arrivals On Parallel Or Non- Intersecting diverging Runways.
Ch5	Sec9	Approach Separation Responsibility.
Ch7	Sec2	Visual Separation.
Ch7	Sec6	Basic Radar Service To VFR Aircraft - Terminal.
NAVAIR 00-80T-114		
Ch4		Naval Certification Procedures.
Ch7		General (Radar Operations).
Ch8		Training, Standardization, and Air Traffic Controller Performance Evaluations.
Appendix G		Air Traffic Control Specialist Mishap Statement.
Appendix I		Minimum Altitude Vectoring Chart.
Local publications.		

KAPC-356

Topic. Phraseology/Communications applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch2	Sec4	Radio/Interphone Communications.
Ch3	Sec1	Establishing Two-way.
Ch4	Sec2	Clearance Prefix.
Ch4	Sec3	Departure Clearances.
Ch4	Sec3	Abbreviated Departure Clearance.
Ch4	Sec3	Delay Sequencing.
Ch4	Sec3	Forward Departure Delay Info.
Ch4	Sec3	Coordination W/Receiving Facility.
Ch4	Sec3	Forwarding Departure Times.

Ch4	Sec6	Delays.
Ch4	Sec7	Single Frequency Approaches (SFA).
Ch4	Sec7	Radio Frequency and Radar Beacon Changes For Military Aircraft.
Ch4	Sec7	Approach Information.
Ch4	Sec7	Arrival Information By Approach Control Facilities.
Ch4	Sec8	Communications Release.
Ch5	Sec2	Radar Beacon Code Changes.
Ch5	Sec2	Radio Failure.
Ch5	Sec2	VFR Code Assignments.
Ch5	Sec2	Failure to Display.

Local publications.

KAPC-357

Topic. Separation knowledge applied in a Radar Approach Control environment.

Reference

FAA 7110.65

Ch4	Sec5	Vertical Separation Minima.
Ch4	Sec6	Clearance Beyond Fix.
Ch4	Sec6	Visual Holding Points.
Ch4	Sec6	Holding Flight Path Deviation.
Ch4	Sec6	Unmonitored NAVAIDS.
Ch4	Sec7	Transfer of Jurisdiction.
Ch4	Sec8	Approach Clearance.
Ch4	Sec8	Clearance Limit.
Ch4	Sec8	Circling Approach.
Ch4	Sec8	Missed Approach.
Ch4	Sec8	Practice Approaches.
Ch4	Sec8	Low Approach and Touch and Go.
Ch5	Sec2	Validation of Mode C Readout.
Ch5	Sec2	Altitude Confirmation - Mode C.
Ch5	Sec2	Altitude Confirmation-Non Mode C.
Ch5	Sec3	Application.
Ch5	Sec3	Primary Radar Identification Methods.
Ch5	Sec3	Beacon Identification Methods.
Ch5	Sec3	ARTS/PIDP Identification Methods.
Ch5	Sec3	Questionable Identification.
Ch5	Sec4	Transferring Controller Handoff.
Ch5	Sec4	Receiving Controller Handoff.
Ch5	Sec4	Point Out.
Ch5	Sec5	Application.
Ch5	Sec5	Target Separation.
Ch5	Sec5	Minima.
Ch5	Sec5	Passing or Diverging.
Ch5	Sec5	Additional Separation for Formation Flights.
Ch5	Sec5	Separation From Obstructions.
Ch5	Sec8	Procedures.
Ch5	Sec8	Initial Heading.
Ch5	Sec8	Successive/Simultaneous Departures.
Ch5	Sec8	Departure And Arrival.

Ch5	Sec8	Departures And Arrivals On Parallel Or Non-Intersecting Diverging Runways.
Ch5	Sec9	Approach Separation.
Ch5	Sec15	Responsibility (ARTS).
Ch5	Sec15	System Requirements.
Ch5	Sec15	Conflict Alert/Mode C Intruder (MCI).
Ch5	Sec15	Inhibiting Minimum Safe Altitude Warning (MSAW).
Ch5	Sec15	Track Suspend Function.
Ch7	Sec1	Approach Control Service for VFR Arriving Aircraft.
Ch7	Sec2	Visual Separation.
Ch7	Sec5	SVFR.

Local publications.

KAPC-358

Topic. Letters of Agreement and Facility Directives/ Facility Memos/Publications as applied in a Radar Approach Control OJT environment.

Reference

FAA 7220.1	Operational Position Standards.
FAA 7110.65	Air Traffic Control.
FAA 7210.3	Facility Operations.
FAA 7340.1	Contractions Manual.
FAR 91	General Operating.
AIM	Aeronautical Information Manual.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	Military Training Route
Local Sectional	
SECNAVINST 5216.5C	Memorandum of Understanding.
NAVAIR 00-80T-114	
Ch3	Facility Management.
Appendix C	Sample format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States.	
High Altitude United States.	
Local publications.	

6. Recommended Knowledge

Title. Introduction to the Joint Tactical Air Operations (JTAO)Interface, JTAO Module 1.

Requirement. Describe the Joint Tactical Air Operations (Managerial Personnel) to include:

- In descending order of responsibility, the officers in a JTAO interface.

- Responsibilities and probable location of each member of the JTAO interface:
 - Area air defense commander.
 - Interface control officer.
 - Track data coordinator.
- Communications nets/circuits used in the interface to carry out the actions of JTAO managerial personnel.

Title. Introduction to Joint Tactical Air Operations (JTAO) Interface, JTAO Module 1.

Requirement. Demonstrate knowledge of Joint Tactical Air Operations (Tactical Procedures) to include:

- How tactical data is entered into a JTAO interface when a unit no longer sends digital information.
- Reasons for using data filters.
- Types of data filters and the information each filter will eliminate from the interface.
- Manner in which "reflexive filtering" is used for both transmission and reception of tactical data.
- Identify which IDENTITY tracks cannot be filtered.
- Types of alerts, their uses, and their order of precedence.
- Sources of non-real-time tracks and the interval in which such tracks are updated within the tactical data system.
- Role of the interface control officer in relation to non-real-time tracks.
- Identify the use of pointers.
- Identify the elements in a digital command message.
- Identify the differences between EMCON and EMREL.

Title. Introduction to Joint Tactical Air Operations (JTAO) Interface, JTAO Module 1.

Requirement. Describe the Joint Tactical Air Operations (Technical Procedures) to include:

- Purpose of the Data Link Reference Point (DLRP), who defines it, and how it is used in a JTAO interface.
- Role of the Data Reference Referral Unit (DRRU), in relation to other JTAO interface units, as well as the basis for its selection.
- Major types of track reporting problems that occur in a JTAO interface.
- Areas in which data differences usually occur and the types of track reporting problems that occur in each.
- Procedures for clarifying conflicts involving data differences and the JTAO manager with authority for resolving such conflicts.
- Types of track reporting problems involving dual designations as well as the causes for each.
- JTAO manager with the authority for resolving problems involving one contact and multiple track numbers.
- JTAO manager with authority for resolving conflicts where multiple tracks have the same number.

Title. Introduction to TADIL operations, JTAO Module 2.

Requirement. Describe the Joint Tactical Air Operations (TADIL operations) to include:

- Types of TADILs used in the US military for joint air control/air defense operation.
- The services which use each type of TADIL.
- Characteristics of each type of TADIL.
- Units or components within each branch of the military that use each type of TADIL.
- Role of a Net Control Station (NCS), a picket, and a forwarding participating unit in a TADIL-A net.
- Differentiate between five types of TADIL-A net operating modes.
- Differentiate between reporting units and forwarding reporting units in a TADIL-B exchange.
- Identify the TADIL-C control units and capabilities in each branch of the military.
- Role of ATDL-1 in a JTAO interface.
- Types of voice coordination nets and their uses in a JTAO interface.

Title. Introduction to TADIL Operations, JTAO Module 2.

Requirement. Describe the Joint Tactical Air Operations communications management to include:

- Factors that affect radio signal transmissions.
- Factors that affect radio wave propagation.
- Uses, controls, and operating characteristics of four JTAO interface voice coordination nets.
- Appropriate frequency bands and frequency ranges for TADIL-A, -B, -C, -J, and ATDL-1.
- Operating characteristics for TADIL-A, -B, -C, -J and ATDL-1.
- Major factors to be considered in the following interfaces:
 - TADIL-A.
 - TADIL-B.
 - TADIL-C.
 - TADIL-J.
 - ATDL-1.
- General factors to be considered in establishing a joint TADIL interface.

Title. Introduction to TADIL Operations, JTAO Module 2.

Requirement. Describe the Joint Tactical Air Operations (OPDAT elements) to include:

- Differentiate between an operational plan and an operational order.
- Who issues the JTAO OPDAT.
- Purpose of the JTAO OPDAT.
- Parts of the OPDAT that relate to TADIL-A and those that relate to TADIL-B.
- What information is contained within each part relating to TADIL-A and TADIL-B and how it is applied to the JTAO interface.
- Parts of the OPDAT that relate to interface duties, areas of responsibility, and zones for airspace management.

- Ways the OPDAT uses to express locations, areas of responsibility, and zones for airspace management.
- Identify the OPDAT part dealing with encryption references.

Title. Airborne Tactical Data System (ATDS), JTAO Module 5.

Requirement. Describe the Navy airborne tactical data system to include:

- Navy's fundamental missions, combat force structure and organization.
- Basic Navy air operations/air defense ATDS platforms, missions, and organization.
- Functions, capabilities, and limitations of the following ATDS platforms:
 - E-2C Hawkeye.
 - S-3 Viking.
 - P-3 Orion.
- Roles, functions, ranks, job titles, and chain of command of key decision-making personnel with the E-2C Hawkeye.
- Naval ATDS platform's interface with tactical air control systems of other services.

Title. Navy Tactical Data System (NTDS), JTAO Module 5.

Requirement. Describe the NTDS to include:

- Navy's fundamental missions, combat force structure and organization.
- Basic Navy air operations/air defense NTDS platforms, their missions, and organization.
- Functions, capabilities, and limitations of the Combat Information Centers (CIC's) on board the following NTDS capable ships:
 - Carrier (CV/CVN).
 - Cruiser (CG).
 - Amphibious Assault Ship (LHA).
 - Amphibious Command Ship (LCC).
- Roles, functions, ranks, job titles, and chain of command of key decision-making personnel associated with the CIC's aboard each type of NTDS equipped ship.
- Tactical data links by which the NTDS equipped ships interface with tactical air control systems of other services.

Title. Ground Elements of the Theater Air Control System (TACS), JTAO Module 6.

Requirement. Describe the Air Force Tactical Air Control System (Ground) to include:

- Fundamental missions, combat force structure, and organization of the Air Force.
- Basic Air Force air control/air defense ground facilities, mission and organization.
- Functions, capabilities, and configurations of the following ground facilities:

- Tactical Air Control Center (TACC).
- Control and Reporting Center (CRC).
- Control and Reporting Post (CRP).
- Message Processing Center (MPC).
- Roles, functions, ranks, job titles, and chain of command of key decision-making personnel associated with the ground elements.
- Tactical data links by which the Air Force ground elements interface with tactical air control systems of other services.
- Chain of command for HIMAD air defense systems.

Title. Airborne Elements of the Air Control System (AEAC), JTAO Module 7.

Requirement. Describe the Air Force Tactical Air Control System (Airborne) to include:

- Identify the fundamental missions, combat force structure and organization of the Air Force.
- Identify the basic air operations/air defense airborne facilities, their mission and organization within the Air Force Tactical Air Control System.
- Identify the functions, capabilities, and configurations of the following airborne facilities:
 - E-3 Airborne Warning and Control System (AWACS).
 - Airborne Battlefield Command and Control Center (ABCCC).
- Identify the roles, functions, ranks, job titles and chain of command of key decision-making personnel associated with AWACS and the ABCCC.
- Identify the tactical data links utilized by the Air Force airborne facilities.

Title. Army Air Defense Command & Control System (AADCCS), JTAO Module 8.

Requirement. Describe the Army Air Defense Command & Control System (AADCCS) to include:

- Identify the Army mission, combat force structure and organization.
- Identify the basic organization of the Army's air defense artillery (ADA).
- Identify how Army air defense units interface with tactical air control systems of other services.
- Identify the roles, functions, ranks, and job titles of key decision-making personnel within the AADCCS.
- Identify the configurations, functions, and capabilities for the Patriot battalion.
- Identify the chains of command and control for HIMAD air defense systems.